

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2803	(345/583-607).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2005/02/14 13:48
L2	806	1 and @pd>"20030203"	US-PGPUB; USPAT; USOCR	OR	ON	2005/02/14 13:50
L3	98	"reflectance map" or "reflectance mapping"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/02/14 13:58
L8	97	specular and ("environment map" or "environment mapping")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/02/14 14:23
L9	25	specular with ("environment map" or "environment mapping")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/02/14 14:23
L11	36	specular and ("reflectance map" or "reflectance mapping")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/02/14 14:59

9/708, 797

Searching for **environment map** and **specular** and **reflectance** and **texture** and **detail**.

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4 documents found. Order: number of citations.

Homomorphic Factorization of BRDF-based Lighting Computation - Latta, Kolb (2002) (Correct) (3 citations)  
as a generalized approach to several **environment map** prefiltering techniques. Existing  
elevation. This technique stores the diffuse and **specular** terms in separate **textures**. Additionally a  
have been developed to approximate Bidirectional **Reflectance** Distribution Functions (BRDF) with acceptable  
[www.2ld.de/diplom/HFLCSiggraph.pdf](http://www.2ld.de/diplom/HFLCSiggraph.pdf)

One or more of the query terms is very common - only partial results have been returned. Try [Google \(CiteSeer\)](#).

**Vol. 7, No. 4:3-8 - Simple Blurry Reflections (Correct)**

7, No. 4:3-8 Simple Blurry Reflections with **Environment Maps** Michael Ashikhmin and Abhijeet Ghosh SUNY capabilities to approximate the effect of blurry **specular** reflections and indirect diffuse illumination. reflection behavior using the bidirectional **reflectance** distribution function (BRDF) They then use [www.cs.sunysb.edu/~ash/blurry.pdf](http://www.cs.sunysb.edu/~ash/blurry.pdf)

Realistic Materials and Lighting in Real-Time Rendering - Latta (2001) (Correct)

parabolic, right: cube map) 49 ure 12: **Environment maps** (Loch, Desert, painted light sources)

55 ure 15: Result of glossy **environment map** with **specular** Phong model .55 ure 16:

### 9.2.3 Bidirectional **Reflectance** Distribution Function (BRDF)

[www.2ld.de/diplom/RealisticMaterialsDiplomaThesis.pdf](http://www.2ld.de/diplom/RealisticMaterialsDiplomaThesis.pdf)

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Relevance scale ☐ ☐ ☐ ☐ ☐**1** [Level-of-detail volume rendering via 3D textures](#)
 Manfred Weiler, Rüdiger Westermann, Chuck Hansen, Kurt Zimmermann, Thomas Ertl  
 October 2000 **Proceedings of the 2000 IEEE symposium on Volume visualization**

Full text available: pdf(1.04 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**2** [Session 7: rendering: Detail synthesis for image-based texturing](#)

Ryan M. Ismert, Kavita Bala, Donald P. Greenberg

April 2003 **Proceedings of the 2003 symposium on Interactive 3D graphics**

Full text available: pdf(3.31 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Image-based modeling techniques permit the creation of visually interesting geometric models from photographs. But traditional image-based texturing (IBT) techniques often result in extracted textures of poor, uneven quality. This paper introduces a novel technique to improve the quality of image-based textures. We compute a simple and efficient texture quality metric based on the Jacobian of the imaging transform. We identify the correlation between the values of the Jacobian metric and the lev ...

**Keywords:** image-based modeling, texture mapping**3** [Shading, surfaces, and collision detection: Automatic shader level of detail](#)

Marc Olano, Bob Kuehne, Maryann Simmons

July 2003 **Proceedings of the ACM SIGGRAPH/EUROGRAPHICS conference on Graphics hardware**

Full text available: pdf(2.69 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Current graphics hardware can render procedurally shaded objects in real-time. However, due to resource and performance limitations, interactive shaders can not yet approach the complexity of shaders written for film production and software rendering, which may stretch to thousands of lines. These constraints limit not only the complexity of a single shader, but also the number of shaded objects that can be rendered at interactive rates. This problem has many similarities to the rendering of lar ...

**Keywords:** computer games, hardware systems, interactive rendering, languages, level of detail, multi-pass rendering, procedural shading, reflectance & shading models, rendering systems, simplification

9/208,797



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### 1 Shading and shaders: Efficient rendering of spatial bi-directional reflectance distribution functions

David K. McAllister, Anselmo Lastra, Wolfgang Heidrich

 September 2002 **Proceedings of the ACM SIGGRAPH/EUROGRAPHICS conference on Graphics hardware**

Full text available: pdf(2.80 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We propose texture maps that contain at each texel all the parameters of a Lafortune representation BRDF as a compact, but quite general surface appearance representation. We describe a method for rendering such surfaces rapidly on current graphics hardware and demonstrate the method with real, measured surfaces and hand-painted surfaces. We also propose a method of rendering such spatial bi-directional reflectance distribution functions using prefiltered environment maps. Only one set of maps is ...

**Keywords:** graphics hardware, reflectance & shading models, rendering hardware, texture mapping

### 2 Frequency space environment map rendering

Ravi Ramamoorthi, Pat Hanrahan

 July 2002 **ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Computer graphics and interactive techniques**, Volume 21 Issue 3

Full text available: pdf(3.37 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a new method for real-time rendering of objects with complex isotropic BRDFs under distant natural illumination, as specified by an environment map. Our approach is based on spherical frequency space analysis and includes three main contributions. Firstly, we are able to theoretically analyze required sampling rates and resolutions, which have traditionally been determined in an ad-hoc manner. We also introduce a new compact representation, which we call a *spherical harmonic reflec* ...

**Keywords:** complexity analysis, environment maps, image-based rendering, signal-processing, spherical harmonics

### 3 Image-based reconstruction of spatial appearance and geometric detail

